



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

size of one of the seed-vessels (*acrospore*) containing these six or more seeds, when Professor Caspary computes its breadth at $\frac{1}{165}$ of a millimetre, and its length at $\frac{1}{125}$ of a millimetre (*Monatsberichte der Königl. Akademie*, etc., *für Mai*, 1855). Seeds, so minute, can be readily absorbed by the roots or even by the leaves, and in such abundance that the very atmosphere may be surcharged with them. A few of them placed in a drop of water and applied to the leaves, stems and tubers, by Dr. DeBary, produced in a short time brown spots, and eventually the disease.

The remedy or the prevention, what? Perhaps none as yet discovered which will be effectual, but the entire destruction by fire of all infected stalks and potatoes looks to a suggestive prevention.

DEER AND DEER-HUNTING IN TEXAS.

BY CHARLES WRIGHT.

IN the States east of the Mississippi river, the number of persons who have seen deer in the wild state is comparatively small, and they are exceedingly few who, by personal experience, have learned much of their ways. And, as these animals are fast disappearing, so also are they who have had the opportunity of studying their habits in their native haunts. Hence, it seems not inappropriate to put on record such information as I have gained, partly from personal experience, and partly from others who have had far more and better opportunities of knowing them well.

The deer is by nature a timid animal, and persecution makes it more so. Even the gentlest pet that will take food from the hand or lick the fingers will not suffer that hand upon the back without shrinking. Of the very different degrees of domesticity to which animals attain, that of the deer is among the lowest. According to the frequency and

the manner in which he is hunted, so is his cautiousness increased. If he is chased, the voice of the dog, though at a distance, rouses him from repose to seek safety in flight. When hunted by men on foot, as in the Indian country, he becomes wary of footmen, but will allow a rider to approach him quite closely. Just the reverse takes place when the ordinary mode of hunting is on horseback. It is also a prevalent belief that, where Indians are the principal hunters, he learns the difference, and becomes comparatively fearless of a white man. This is akin to the notion that the crow can distinguish a man with a gun from one who has only a stick, though it may resemble a gun.

The old bucks consort together most of the year; the does and young bucks go in herds by themselves. When the does have their fawns in the spring, they separate from the young males, and from each other, and remain for some months with no companion but the fawn, until it is pretty well grown. If a fawn, quite young, be met by a man on horseback, it will follow the horse as if it were its mother. One caught within the first few days after its birth becomes quite tame in an hour or two, and makes no effort, afterwards, to escape. Yet, it never becomes domesticated like the dog or cat; and, though it will stay in and around the house, and among the cattle, dogs and people, it runs away to the woods within two or three years.

Deer are very silent animals. Only two sounds that can perhaps be called vocal have been heard by me. One is a cry of terror or of pain. The fawn, when caught, bleats like a lamb or kid in like circumstances, and the grown deer, when the backbone is hit by the bullet, falls in its tracks and often emits a similar cry of pain, or it may be of terror, for it is sometimes repeated when he is seized by the hunter, or even when the latter is seen approaching.

Another sound is a kind of snort,—a forcible emission of air from the nostrils. The hunter says he "blows;" it may be a note of anger or defiance. At the season when the doe

is rearing her young, if she is surprised near the fawn, and yet if the danger be not very imminent, she will stand and "blow," occasionally raising a forefoot and stamping with it on the ground. The bucks also blow, but less frequently.

If my memory does not deceive me I think I have heard the hunters speak of other sounds made by deer,—a faint call of the mother to the fawn, and the reciprocal cry of the young. There may be also a sexual call. I think I have heard such an one spoken of, as uttered at the time when the males seek the females.

The hair is shed twice in the year. The summer-coat is red; not exactly the color of a red cow nor that of a bay horse, yet not very unlike either. The fawn is similar in color, with two rows of white spots, and scattering ones on each side, which it retains often long after the winter-coat is assumed. This is called the blue. It is rather an ashy-gray, or near a slate-color. The hairs are longer, much closer, whitish, except the tips which are dark, or ringed with white and dark spaces.

It is a current belief that deer feed principally on grass. This is far from being correct. They love what is tender and juicy. They resort always to a recent burn, when grass and weeds are just shooting again and are soft; then abandon it for a newer one, so soon as the plants have become hard or tough. If the track of deer be followed, the grass will never be found cropped by the mouthful, as it is eaten by horses, cows, and sheep. Deer select here only a blade or two, there a tender twig or leaf; but they are fond of fruits of almost every kind. In early spring they visit the ponds in which the May-haw grows, the fruit of which is juicy with the flavor of the apple, though too, sour. Later they resort to huckleberry bushes, grape-vines, and persimmon trees, and finally to the oaks. All kinds of acorns, but especially those of the annual trees or sweet acorns, are greedily eaten by them; also chinquapins: and where chestnuts and deer are found together, doubtless the former yield food to the latter.

They sometimes trespass on cornfields, where they crop the bean-vines if there are any, but I am not aware that they injure the corn.

The bucks shed their horns late in the winter. I have heard it affirmed that they pull them off with their feet, when the time arrives that they should be shed. It is quite probable, too, that they may be pulled off when running through thickets. They are sometimes observed at this season with but one antler. It is reasonable to suppose, also, that they may be thrown off by a violent shake of the head when nearly ready to fall, particularly where there are no bushes, as in the great prairies. They soon begin to grow anew, increasing rapidly, and at first they are flexible and covered with soft hair. In this stage they are said to be "in the velvet." In August they have become fully formed; and at, or before this time, they rub their horns against bushes to rid them of the velvet. I have often seen bushes stripped of their bark at a later season, and I conjecture that the practice is connected with the sexual passion. Another custom I am quite confident is due to this cause. They stand under the spreading branch of a tree, which may be about at the height of the animal's head, and paw away with the feet all the leaves and weeds, or herbs if there be any, making a bare spot of ground two or three feet in diameter. This is done only at the period when the buck runs the doe. It is said that bucks will run a castrated individual of their own sex as they do the doe. The place is visited either by different animals from time to time, or some one deer returns repeatedly to the same spot to scrape anew. Whether it is done by one or both sexes I do not know. It is, probably, analogous to the habit of the bear when he barks a pine tree. The second year the antler of the buck is a simple spike; and, according to the general belief, a branch is added each year for five or six years, after which there is rarely any increase in the number of points. I killed a buck with one antler normally formed,

the other smaller, in an atrophied state, and so soft as to be easily broken.

What becomes of deer's horns? A few years ago I saw an attempt to answer the question by some person in one of the Southern Atlantic States, and he arrived at the conclusion that the animal covers them or they would be oftener found. But, in the first place, deer are not so plentiful there that they must be expected to scatter their horns very thickly over the open parts of the forest where they would be readily seen. And, again, each large buck has but two horns thus to dispose of each year; and the large bucks are not very numerous, while the antlers of the small ones are inconspicuous. But the writer had, or thought he had, evidence that the buck covers his antlers with leaves. Doubtless they are so covered by leaves which fall upon them, according to natural laws; but in the forests, and particularly in the prairies of the west, I have seen hundreds which certainly had never been covered by the animals that dropped them. They decay in the ordinary course of nature, and are also eaten by some small rodent, whose tooth-marks I have often seen upon them.

It may not be known to many that bucks often "lock horns," and it sometimes becomes a "dead-lock," literally. I have met, during my hunts, more than one pair of heads thus coupled together, and I killed one pair of bucks so firmly united, that they would have died of hunger if I had not put them to death in a manner less lingering and painful. These animals had evidently come together with great violence; the antlers had yielded to the shock, and had closed again in such a manner that no ordinary exertion of strength was sufficient to separate them. It is not very easy to explain their position; but the beam of the left antler of one was behind, and in close contact with the bases of the two antlers of the other, while the tips of the right antler of the former were locked in the tips of those of the latter. When, later, the skin on the back of the head at the base of the

antlers dried and shrunk, room was made for a little movement, and they could then be unlocked.

At the close of summer the does have become lean,—the effect of rearing the fawn,—while the bucks are in prime condition. Then begins the running season, when the bucks grow careless, or fearless, or both, and fall an easy prey to the hunter. The does, too, seem less wary, or are more intent on feeding. They improve rapidly in condition, especially if mast is plentiful, becoming before midwinter fully fat. The bucks, in their turn, become lean and big-necked, and the flesh acquires a rank taste, so as to be quite unfit for food except under the influence of extreme hunger.

The deer's three senses,—sight, hearing and smell,—are neither of them, by itself, quite adequate to advise him of danger. A noise excites his attention and calls in vision to discover the cause, yet both together may not insure his safety, if danger be near. The noise may be made by the leaping of a squirrel or the scratching of a bird among the leaves; or, it may be any other of the thousand notes that a listener can hear in the *silent* woods. If alarmed by any of these, he recovers confidence when apprized of the cause.

The sense of vision seems to be imperfect in this particular; it takes no cognizance of form and little of color, unless the form and color be those which come most naturally within the sphere of its recognition,—those of its own species. It is motion that draws its attention. When sitting quite still a deer has approached within a few feet of me, and walked quietly away again, unaware, although I was in plain view all the time, that it was so close to one who might have been its enemy. But when a deer *smells* danger, it needs not to look nor to listen. Hence, the attempt to approach him is useless when the wind is blowing from the hunter towards him. But this sense is the least valuable when he is to windward. Acting, then, on his knowledge of these faculties of the animal to discern danger, and their limitation, the hunter, by advancing *against* the wind, or at

least, *not with it*, has nothing to fear from this sense, and has only to deceive the other two. He learns to walk in almost perfect silence, and if he can avoid being seen, his point is gained. Upon a single deer the approach is comparatively easy. He is generally walking slowly, and now and then putting down his head to crop something. In this latter case he cannot see an approaching object; but the moment he raises his head to look about (which he does as often as every half minute or thereabouts), the hunter stops and remains quite still. The deer, at every movement it makes, putting down or raising its head, shakes its tail. Knowing this, the hunter knows just when to advance and when to stop. Thus observant of every motion of the animal, he makes an approach, of which it is quite unaware; and, should it at length perceive the final movement,—the preparation to fire,—it does not immediately run away, but waits a little to see what is the matter. When two deer are together, it is more difficult to come near them, as they may not both feed at the same moments, unless by accident; and the difficulty is increased just in proportion as the number of the herd is greater; and when there are several together, it is nearly useless to attempt to come within gunshot, but better to go away and look for a smaller herd. This is the mode of hunting where, as in prairies, there is no means of concealment. In woods the hunter advances under cover of trees or bushes.

The best hour for hunting is the first clear daylight of the morning. Just before night again, deer are generally feeding. In the summer time they will get up at any hour of the day if a shower comes on. When flies or mosquitoes are very numerous they keep within the thickets by day, and feed almost entirely by night. At such times, fire-hunting may take the place of still-hunting. It is generally known that when dogs, cattle, horses, and many other animals look at a bright light by night, the rays are reflected; and, to any one in the line passing from their eyes through

the light, they look like balls of fire. Deer will, oftentimes, suffer the hunter, with a light, to come very near them. An old frying-pan, having its flat bottom replaced by some curved iron hoop, serves to hold the pieces of resinous pine. The handle is fastened to a strip of plank which is borne on the shoulder. The deer gazes at the light and sees nothing of the hunter who is between it and the fire. Generally, deer can be approached more closely by night than by day. The aim is at the eyes, or straight below them so as to break the neck; or the body is often seen, so that the hunter can shoot where he pleases. A deer rarely falls, when shot, where it was standing, but generally dashes away fifty to a hundred paces or more, even if shot through the heart. If he raises his tail,—shows the white feather,—it may be suspected he was not hit. If struck by the bullet, he runs off at his utmost speed with the tail pressed close down. In the daytime, the hunter goes where the deer was standing, which may be known by the deep tracks made at the first spring, and looks for hair cut off by the bullet. If he finds it, he is sure of having hit his game; and following on the track, he soon comes upon the blood, when he can track it more easily. This is where there are bushes or tall grass. In more open places, the deer may be seen to run its race and fall dead. If any part of the spinal column be touched, the animal falls where it is standing, but if the bone be only slightly hurt it may get up again. I have had a case or two of this kind, when, just as I was about to bag my game, he has jumped up and taken leg-bail.

This account of the deer will hardly be complete without some remarks on the chase, and of this I know nothing by personal experience; but there is no lack of narratives and incidents relating to this gentlemanly and royal sport. So I will only touch upon one peculiarity of the chase in Texas, as I heard it from those who had followed it in the states from which they came. It was said, that in the Atlantic and Gulf States, where the chase is, or was, a favorite pastime,

the hunter can judge, with considerable probability, where the deer will pass when running before the hounds. Thus in a given area,—a township we will suppose,—the deer will cross a creek in one or two of half a dozen regular crossings; or he will pass one of a limited number of known glades or openings in the general forest. But in Texas this did not hold good. Either the deer had no regular passing places, or they had so indefinite a number that the hunters were not able to discover them. Perhaps this difference comes from the fact, that running deer with hounds had never been practised there, and they had not become used to it. The hunters were quite at a loss where to station themselves in order to get a shot at the chase.

It may not be irrelevant to describe the process of dressing deer-skins, which furnish the material used in the manufacture of buckskin gloves. There are three principal operations: graining, braining, and smoking. The first is mechanical; the other two effect some chemical change which I am unable to explain satisfactorily. The skin is dried and afterwards soaked till it is soft; then the hair and grain, or cuticle, are rubbed off with any instrument serving the same purpose as a currier's knife, the skin being spread out on anything answering to the currier's beam. The skin is partially "broken" in this process, and it should be stretched and broken still more, while drying, that it may "take brains" more readily. The brains of the deer, or any similar quantity of another animal will dress the skin.* These are thoroughly dissolved in a half pailful of warm water. The skin, immersed in it, soon absorbs the brains and becomes thick and spongy. It should be stretched in all directions, carefully, that no spot may be left unaffected, otherwise that spot will remain hard. It is known when the skin is brained in this manner. Gather up a fold of the

*The same effect is produced by saturating the skin in oil, and then washing it out with strong soap and water. The bruised or crushed root of *Yucca filamentosa* is also used; and the seeds of *Sapindus saponaria* (soap berry) would, probably, answer the same purpose.

skin into the form of a sack or bladder, and blow into it or inflate it; then, closing the orifice and pressing upon the sack, the included air will pass out through innumerable pores, making a spray from the particles of contained water. Wring out all the water possible, and stretch and rub it as before, while drying, when it will become white and soft. If stretched in a suitable frame, nearly to its natural shape, and rubbed with a wedge-shaped stick, the labor is less and the skin is smooth and even; otherwise it will remain more or less wrinkled,—some parts unduly, others not sufficiently stretched. But if the skin be now wetted and suffered to dry without manipulation, it becomes hard again like rawhide. Smoking is a means of obviating this. The object is to make the smoke pass through the pores of the skin. The effect of the braining seems to be to comminute the gluten, but it does not affect its solubility. The smoke seems to form a chemical combination with it, rendering it insoluble. Any dry rotten wood,—hickory, ash, oak, or even cobs,—serves to make the smoke. A hole is dug in the ground about two feet deep and six inches in diameter. Some coals are thrown in and a little of the wood upon them. The skins (better two together) are loosely sewed along the edges, except one, which is stretched around the hole, and the skins are then suspended above it, much like an empty sack with the mouth downward. The smoke in its ascent fills the sack and passes through or penetrates its substance. The process is kept up till the operator deems the skin sufficiently smoked. Now, if they are wetted, they dry soft without manipulation. There is still an operation which improves them, though not necessary. It is a species of tanning. Willow-bark, or that of sassafras is good, as it does not stain clothing, which is spotted by the ooze of oak when the skin is wet and comes in contact with it. We boil a small quantity of bark, and dip the skins into the ooze for a few minutes; wring them as dry as possible and the operation is finished. Treated in this way, the skin becomes one of the strongest textures we

know of. But in its original state, a skin of ordinary size is easily torn into strips. When dressed, the fibres being loose, come gradually into parallelism, and the tension is resisted by many at once. Previously, held to its place by the gluten, each fibre, acting singly, was readily broken.

Here is a problem for hunters. *With a single bullet, to shoot a deer through the heart and break both fore legs, one of them just above the foot.* It has been solved. But how?

THE HABITS OF SPIDERS.

BY J. H. EMERTON.

EVERY reader of the NATURALIST has noticed the round, regularly formed spider-webs which often adorn the corners of fences, and the windows of neglected buildings; but few, perhaps, have had time or patience to watch the skilful manner in which they are constructed, or to examine the apparatus by which the spider spins the thread out of her own body. The builders of these webs belong to a large family of spiders, the Epëiridæ. They are found in all parts of the world where winged insects, which form their food, abound.

To illustrate the habits and structure of these spiders, we will select one common species as a representative of the whole group, and confine our observations to it. This species, the *Epëira vulgaris* of Hentz, seems to be common all over the United States, and is represented by closely related species in other countries. It is seldom found in the woods and fields, but lives in great numbers on garden fences and trellises; in barns, and on the framework of bridges, the structure of which affords numerous crevices for shelter and concealment. When fully grown it is half an inch in length, and its feet, when extended, will cover a circle an inch and a half in diameter. It is clothed with hair of a greyish